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10/564,633	01/13/2006	Hiroaki Watanabe	050825	2119
23850 7590 03/27/2008 KRATZ, QUINTOS & HANSON, LLP 1420 K Street, N.W. Suite 400 WASHINGTON, DC 20005				
EXAMINER				
SHEWAREGED, BETTELHEIM				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/564,633

Applicant(s)

WATANABE ET AL.

Examiner

Betelhem Shewareged

Art Unit

1794

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 January 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SG/US)
Paper No(s)/Mail Date 1/13/2006
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Objections

1. Claim 1 is objected to because of the following informalities: The claim recites the limitation "the pigment" in lines 5 and 6. There is insufficient antecedent basis for this limitation in the claim. Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 5, 10 and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Mukoyoshi et al. (US 6,187,430 B1).

4. Claims 1 and 10: Mukoyoshi teaches an ink jet recording sheet comprising a substrate and an ink receiving layer (abstract). The recording sheet further comprises an undercoat layer between the substrate and the ink receiving layer (col. 5, line 12). The undercoat layer comprises a pigment having a secondary particle size of 2-8 μm (col. 5, line 34). The ink receiving layer comprises inorganic particles, binder (col. 7, line 53), and boric acid (col. 14, line 42). The dry weight of the undercoat layer is 2-100g/m² (col. 7, line 30), and the dry weight of the ink receiving layer is 1-30g/m² (col. 15, line 1).

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5. Claim 5: Mukoyoshi teaches that the inorganic particles comprise wet process silica particles having a secondary particle size of 10-400nm (col. 8, lines 1-31).

6. Claim 11: Mukoyoshi teaches that the recording sheet has a degree of gloss of 50% or more.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mukoyoshi et al. (US 6,187,430 B1), as applied to claim 1 above, and further in view of Totani et al. (US 2001/0009712 A1).

9. Mukoyoshi teaches an ink jet recording sheet as set forth above. Mukoyoshi does not teach the oil absorption value of the pigment in the undercoat layer. However, Totani teaches an ink jet recording sheet comprising undercoat layer containing a pigment having oil absorption of 250ml/100g [0054]. Mukoyoshi and Totani are analogous art because they are from the same field of endeavor that is the ink jet recording medium art. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the pigment of Totani with the invention of Mukoyoshi, and the motivation would be, as Totani suggests, controlling the water resistance property of the recording sheet [0054].

10. Claims 4 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mukoyoshi et al. (US 6,187,430 B1), as applied to claim 1 above, and further in view of Quintens et al. (US 2002/0094421 A1).

11. Claim 4: Mukoyoshi teaches an ink jet recording sheet as set forth above. Mukoyoshi does not teach that the ink receiving layer comprises alumina hydrate. However, Quintens teaches an ink jet recording medium comprising an ink receiving layer containing a pigment and a binder (abstract). The pigment comprises boehmite [0072]. Mukoyoshi and Quintens are analogous art because they are from the same field of endeavor that is the ink jet recording medium art. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the boehmite of Quintens with the invention of Mukoyoshi, and the motivation would be to enhance the ink absorbing property of the layer.

12. Claim 9: Mukoyoshi teaches an ink jet recording sheet as set forth above. Mukoyoshi does not teach that the ink receiving layer comprises polyaluminum hydroxide. However, Quintens further teaches that the ink receiving layer comprises a cationic substance such as polyaluminum hydroxychloride [0080]. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the cationic substance of Quintens with the invention of Mukoyoshi, and the motivation would be, as Quintens suggests, increasing the capacity of the layer for fixing and holding the dye of the ink [0078].

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13. Claims 1-4, 6, 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sismondi et al. (US 6,387,473 B1) in view of Totani et al. (US 2001/0009712 A1), Tsuchiya et al. (US 6,495,242 B1) and Quintens et al. (US 2002/0094421 A1).

14. Claims 1, 2 and 10: Sismondi teaches an ink jet receiving sheet comprising a support, and at least two ink receiving layers (abstract). The receiving sheet further comprises a subbing layer (col. 5, line 49). The ink receiving layer comprises a binder (col. 5, line 63), inorganic filler (col. 7, line 11), and a hardener (col. 8, line 62).

15. Sismondi does not teach boric acid or borate as the hardener. However, Tsuchiya teaches an ink jet recording sheet comprising an ink absorbable layer/void layer (abstract). The void layer comprises boric acid as a hardener (col. 8, line 54). Sismondi and Tsuchiya are analogous art because they are from the same field of endeavor that is the ink jet recording sheet art. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the boric acid of Tsuchiya with the invention of Sismondi, and the motivation would be, as Tsuchiya suggests, increasing the gloss of the image area which has received ink (col. 8, line 49).

16. Sismondi does not teach a subbing layer as recited in claim 1. However, Totani teaches an ink jet recording sheet comprising undercoat layer containing a pigment having oil absorption of 250ml/100g [0054]. Sismondi and Totani are analogous art because they are from the same field of endeavor that is the ink jet recording medium art. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the undercoat layer of Totani with the invention of Sismondi, and

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the motivation would be, as Totani suggests, controlling the water resistance property of the recording sheet [0054].

17. Sismondi does not teach the dry coat weight of the subbing layer and the ink receiving layers. The experimental modification of this prior art in order to ascertain optimum operating conditions fails to render applicants' claims patentable in the absence of unexpected results. *In re Aller*, 105 USPQ 233. One of ordinary skill in the art would have been motivated to adjust coating weight of the layers, and the motivation would be controlling the ink absorbing and water resistance properties of the recording sheet. A prima facie case of obviousness may be rebutted, however, where the results of the optimizing variable, which is known to be result-effective, are unexpectedly good. *In re Boesch and Slaney*, 205 USPQ 215.

18. Claim 3: Sismondi does not teach the pH value of the subbing layer and the ink receiving layers. The experimental modification of this prior art in order to ascertain optimum operating conditions fails to render applicants' claims patentable in the absence of unexpected results. *In re Aller*, 105 USPQ 233. One of ordinary skill in the art would have been motivated to adjust the pH value of the subbing layer and the ink receiving layers, and the motivation would be to optimize the hardening and thickening properties of the layers while maintaining enhanced ink absorbing property of the recording medium. A prima facie case of obviousness may be rebutted, however, where the results of the optimizing variable, which is known to be result-effective, are unexpectedly good. *In re Boesch and Slaney*, 205 USPQ 215.

19. Claims 4 and 6: Sismondi teaches the ink receiving layers comprise alumina hydrate as the filler (col. 7, line 13).

20. Claim 9: Sismondi does not teach that the ink receiving layer comprises polyaluminum hydroxide. However, Quintens further teaches that the ink receiving layer comprises a cationic substance such as polyaluminum hydroxychloride [0080]. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the cationic substance of Quintens with the invention of Mukoyoshi, and the motivation would be, as Quintens suggests, increasing the capacity of the layer for fixing and holding the dye of the ink [0078].

21. Claim 11: The Office realizes that all of the claimed effects or physical properties are not positively stated by the reference(s). However, the reference(s) teaches all of the claimed ingredients. Therefore, the claimed effects and physical properties, i.e. a specular gloss would implicitly be achieved by a composite with all the claimed ingredients. If it is the applicant's position that this would not be the case: (1) evidence would need to be provided to support the applicant's position; and (2) it would be the Office's position that the application contains inadequate disclosure that there is no teaching as to how to obtain the claimed properties with only the claimed ingredients.

22. Claims 1-3, 5 and 7-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kiyama et al. (WO 02/34541 A1) in view of Totani et al. (US 2001/0009712 A1). Kiyama et al. (US 2003/0072925 A1) is used as an English translation.

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23. Claims 1, 2 and 10: Kiyama teaches an ink jet recording material comprising a support, an ink receptive layer A on the support, and an ink receptive layer B on the ink receptive layer A (abstract). A primer layer is provided between the support and the ink receptive layer A [0066]. The ink receptive layer A meets the claimed first ink receiving layer. The ink receptive layer A comprises fumed silica [0018], a hydrophilic binder [0034] and boric acid [0055].

24. Kiyama does not teach a primer layer as recited in claim 1. However, Totani teaches an ink jet recording sheet comprising undercoat layer containing a pigment having oil absorption of 250ml/100g [0054]. Kiyama and Totani are analogous art because they are from the same field of endeavor that is the ink jet recording medium art. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the undercoat layer of Totani with the invention of Kiyama, and the motivation would be, as Totani suggests, controlling the water resistance property of the recording sheet [0054].

25. Kiyama does not teach the dry coat weight of the primer layer and the ink receiving layers. The experimental modification of this prior art in order to ascertain optimum operating conditions fails to render applicants' claims patentable in the absence of unexpected results. *In re Aller*, 105 USPQ 233. One of ordinary skill in the art would have been motivated to adjust coating weight of the layers, and the motivation would be controlling the ink absorbing and water resistance properties of the recording sheet. A prima facie case of obviousness may be rebutted, however, where the results

of the optimizing variable, which is known to be result-effective, are unexpectedly good.

In re Boesch and Slaney, 205 USPQ 215.

26. Claim 3: Kiyama does not teach the pH value of the subbing layer and the ink receiving layers. The experimental modification of this prior art in order to ascertain optimum operating conditions fails to render applicants' claims patentable in the absence of unexpected results. *In re Aller*, 105 USPQ 233. One of ordinary skill in the art would have been motivated to adjust the pH value of the subbing layer and the ink receiving layers, and the motivation would be to optimize the hardening and thickening properties of the layers while maintaining enhanced ink absorbing property of the recording medium. A prima facie case of obviousness may be rebutted, however, where the results of the optimizing variable, which is known to be result-effective, are unexpectedly good. *In re Boesch and Slaney*, 205 USPQ 215.

27. Claim 5: Kiyama teaches that the fumed silica in the ink receptive layer A has a secondary particle size of 50-300nm [0018].

28. Claim 7: Kiyama teaches that the ink receptive layer B comprises alumina hydrate [0019]. The ink receptive layer B meets the claimed second ink receiving layer.

29. Claim 8: Kiyama does not teach the surface area value of the particles in the ink receptive layer A and the particles in the ink receptive layer B. The experimental modification of this prior art in order to ascertain optimum operating conditions fails to render applicants' claims patentable in the absence of unexpected results. *In re Aller*, 105 USPQ 233. One of ordinary skill in the art would have been motivated to adjust the surface area value of the particles in the ink receptive layer A and the particles in the ink

receptive layer B, and the motivation would be to control ink absorption and retention capacity, and provide high ink holding efficiency. A prima facie case of obviousness may be rebutted, however, where the results of the optimizing variable, which is known to be result-effective, are unexpectedly good. *In re Boesch and Slaney*, 205 USPQ 215.

30. Claim 9: Kiyama teaches that the ink receptive layers A and B further comprise polyaluminum hydroxide [0049].

31. Claim 11: The Office realizes that all of the claimed effects or physical properties are not positively stated by the reference(s). However, the reference(s) teaches all of the claimed ingredients. Therefore, the claimed effects and physical properties, i.e. a specular gloss would implicitly be achieved by a composite with all the claimed ingredients. If it is the applicant's position that this would not be the case: (1) evidence would need to be provided to support the applicant's position; and (2) it would be the Office's position that the application contains inadequate disclosure that there is no teaching as to how to obtain the claimed properties with only the claimed ingredients.

Conclusion

32. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Betelhem Shewareged whose telephone number is 571-272-1529. The examiner can normally be reached on Mon.-Fri. 8:00AM-4:30PM.

33. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Milton Cano can be reached on 571-272-1398. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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34. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

BS

March 23, 2008.

/Betelhem Shewareged/
Primary Examiner, Art Unit 1794